

1. An apparatus for motion detection on a compressed video sequence, comprising:

a receiver for locating command data from the compressed video sequence; and

5 a detector for detecting a change in the command data to indicate motion.

2. An apparatus for motion detection according to claim 1,

10 wherein the compressed video sequence received by the receiver has predetermined compressed format; and

wherein the receiver locates the command data from the compressed video sequence by obtaining synchronization information to locate known position in the video sequence and by parsing the compressed video sequence until finding the desired command data field.

15

3. An apparatus for motion detection according to claim 1,

wherein the command data located by the receiver comprises a quantization factor of the compressed video sequence; and

20 wherein the detector detects change in the quantization factor to indicate motion.

1003498-1304

4. An apparatus for motion detection according to claim 3, wherein the compressed video sequence received by the receiver comprises frames of digital command data and of image data.

5 5. An apparatus for motion detection according to claim 4, wherein the compressed video sequence received by the receiver has a constant number of bits per frame.

6. An apparatus for motion detection according to claim 3, wherein the  
10 detector detects change in the quantization factor by assessing an amount of change of a present value  $T_i$  and a previous value  $T_{i-1}$  as follows:

$$\text{amount of change} = (T_i - T_{i-1}) / T_i$$

15 and wherein the amount of change is threshold to indicate motion.

7. An apparatus for motion detection according to claim 6, wherein the detector detects an amount of change by thresholding to indicate motion when the amount of quantization factor change is above about 20%.

5 8. An apparatus for motion detection according to claim 6, wherein the detector detects an amount of change by thresholding to indicate motion when the amount of quantization factor change is above between approximately 10% and 90%.

9. An apparatus for motion detection according to claim 3, wherein the  
10 detector detects an amount of change in the quantization factor by taking a derivative of the quantization factor to assess an amount of change and indicate motion.

10. An apparatus for motion detection according to claim 3, wherein the  
15 compressed video sequence received by the receiver comprises an MPEG compressed video sequence.

11. An apparatus for motion detection according to claim 3, wherein the  
compressed video sequence received by the receiver comprises an H.263 compressed  
video sequence.

12. An apparatus for motion detection according to claim 11, wherein the  
20 command data located by the receiver comprises a PQUANT quantization factor field of the H.263 compressed video sequence.

13. An apparatus for motion detection according to claim 1, wherein both  
25 the receiver and the detector operate in real time on the compressed video sequence.

14. A method of motion detection on a compressed video sequence,  
comprising the steps of:  
30 (a) locating command data from the compressed video sequence; and  
(b) detecting a change in the command data to indicate motion.

15. A method of motion detection according to claim 14,  
wherein the video sequence used in step (a) has predetermined format;  
and

5 wherein the receiving of said step (a) comprises the substeps of  
(a1) obtaining synchronization information to locate known  
position in the video sequence; and  
(a2) parsing the compressed video sequence until finding the  
desired command data field.

10 16. A method of motion detection according to claim 14,  
wherein the command data located in step (a) comprises a quantization  
factor of the compressed video sequence; and  
wherein the detecting step (b) comprises the substep of (b1) detecting  
change in the quantization factor to indicate motion.

15 17. A method of motion detection according to claim 16, wherein the  
compressed video sequence used in step (a) comprises frames of digital command  
data and of image data.

20 18. A method of motion detection according to claim 17, wherein the  
compressed video sequence used in step (a) has a constant number of bits per frame.

19. A method of motion detection according to claim 16, wherein the step  
(b1) of determining change in the quantization factor comprises the substep of (b1i)  
25 taking a derivative of the quantization factor to assess an amount of change and  
indicate motion.

20. A method of motion detection according to claim 14, wherein both the  
steps (a) and (b) operate in real time on the compressed video sequence.

30